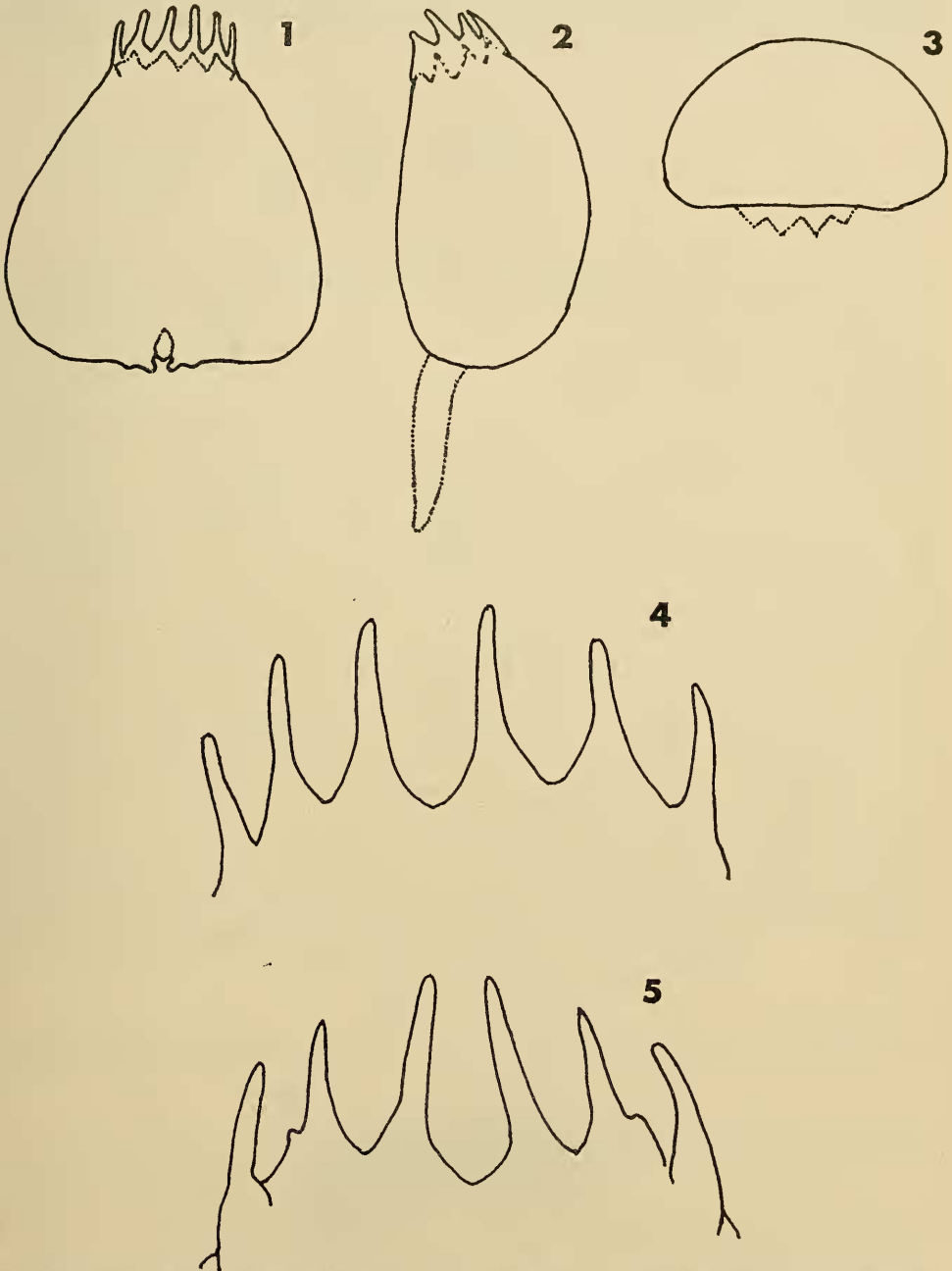


(*Asplanchnella*) sp. near *A. brightwelli* (♂♀, ♀♀). In Boolambayte *B. baylyi* was uncommon and most of the specimens did not carry eggs.

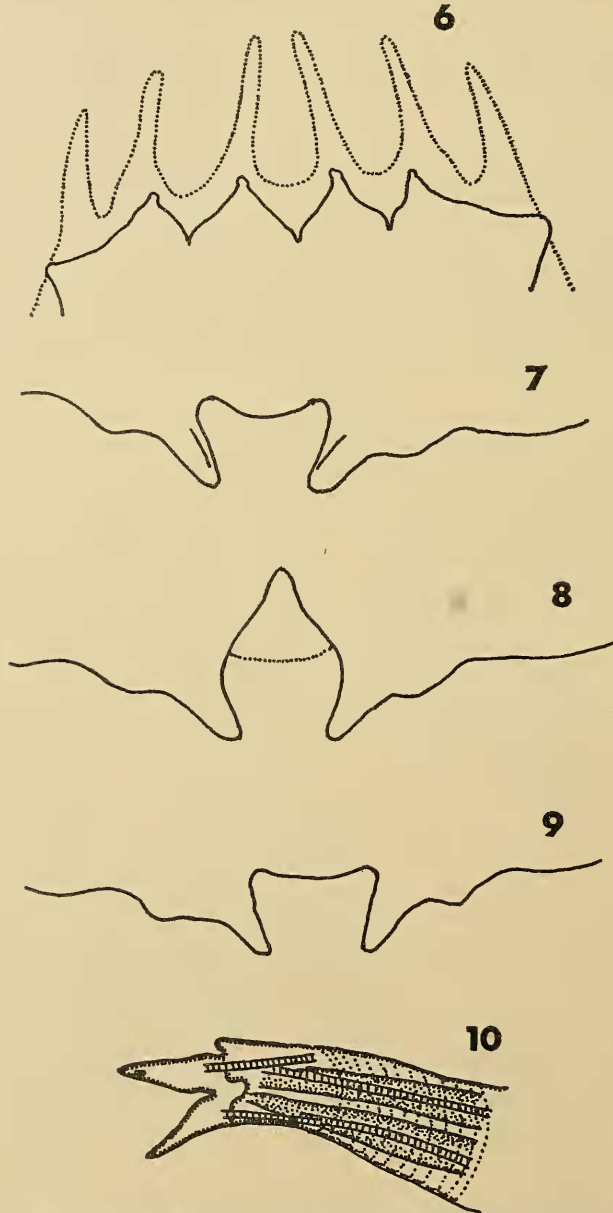
The new species *B. baylyi* occurred in salinities 1.4–1.9‰ and only in late summer and autumn. It was invariably associated with the copepods *Gladioferens spinosus* Henry and *Sulcanus conflictus* Nicholls.



Figs 1–5. *Brachionus baylyi* sp. nov. 1. Dorsal view. 2. Lateral view. 3. Frontal view. 4. Occipital spines. 5. Accessory spines on intermediates.

The holotype of *Brachionus baylyi* is deposited in the Australian Museum, Sydney (AM Z.3697); other specimens have been designated as paratypes (AM Z.3698). Further paratypes are kept in the Biological Laboratory of Nihon Daigaku (A.ROT. 0012-0015).

Etymology. The species has been named after Dr. I. A. E. Bayly, Monash University, in honour of his pioneering work on the biology of estuarine plankton in Australia.



Figs 6-10. *Brachionus baylyi* sp. nov. 6. Pectoral margin. 7. Caudal extremity (dorsal). 8. Caudal extremity (ventral). 9. Knoblike swellings. 10. Foot with toes.

DISCUSSION

Brachionus is a common and representative genus of planktonic rotifers. A number of monographs and papers relating to it have been published, including descriptions of the genus and its species (Bryce, 1924; Ahlstrom, 1940; Gillard, 1948; Voigt, 1956-57; Bartos, 1959; Berzins, 1960; Rudescu, 1960; Sudzuki, 1964; Kutikova, 1970; Ruttner-Kolisko, 1972; Koste, 1972). The following five criteria for species separation within the genus *Brachionus* have been regarded as valid by Bryce (1924, p. 95), Sudzuki (1964, p. 40) and Ruttner-Kolisko (1972, p. 163):

- (i) the pattern of the pectoral or mental margin of the lorica;
- (ii) the pattern of the occipital margin;
- (iii) the general shape of the lorica (spine excluded);
- (iv) the structures of the foot;
- (v) the features around the foot opening.

Based on the pattern of the pectoral margin of the lorica, the specimens from Myall Lakes are most similar to two varieties of *B. plicatilis*, namely var. *orientalis* Rodewald 1937 (Rudescu, 1960, p. 408, Fig. 323) and var. *decemcornis* Fadeev 1925 (Kutikova, 1970 p. 568, Fig. 926) and to *B. satanicus* Rousselet 1913 (Rousselet, 1913, pp. 59-60, Fig. 2). However, these two varieties of *B. plicatilis* are clearly different from *B. baylyi* in the pattern of the occipital margin (saw-toothed in these varieties, not saw-toothed in *B. baylyi*) and in the general shape of the lorica (ovoid in *B. orientalis*, elongated in *B. decemcornis*, triangular in *B. baylyi*). *Brachionus baylyi* is distinctly different from *B. satanicus* in lacking large caudal elongations.

The pattern of the occipital margin and the caudal features are similar in *Brachionis baylyi* and *B. nilsoni* Ahlstrom (Ahlstrom 1940, Pl. 18, Fig. 2), but in the latter species the pectoral margin is undifferentiated into projections.

In the general shape of the lorica and in habitats *B. baylyi* is allied to two varieties of *B. plicatilis*, namely var. *spatiosus* Rousselet 1912 (Rousselet, 1912 pp. 373-4, Pl. 13, Fig. 2) and var. *rotundiformis* Tschugnoff 1921 (Kutikova, 1970, p. 586, Fig. 927), to *B. pterodinoides* Rousselet 1913 (Rousselet, 1913, p. 59, Fig. 1; Carlin-Nilson 1935, p. 4, Figs 8-10) and to *B. novae-zealandiae* (Morris) 1913 (Morris, 1913, p. 167 with figure). However, *B. baylyi* is different from these two varieties in lacking saw teeth on the occipital spines and in not possessing "scalloped" elevations on the pectoral margin. Furthermore the shape of the posterior half of the lorica is different (round in var. *rotundiformis*, slender in var. *spatiosus*). *Brachionus baylyi* is readily distinguishable from *B. pterodinoides* in the position of the foot opening (ventral and nearly in the middle of the body in *B. pterodinoides*, terminal in *B. baylyi*), and from *B. novae-zealandiae* in the shape of the pectoral margin (markedly elevated toward centre in *B. novae-zealandiae*, not elevated toward centre in *B. baylyi*).

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UPPER ORDOVICIAN TABULATE CORALS FROM CENTRAL-WESTERN NEW SOUTH WALES

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(Plates II-X)

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Synopsis

Eighteen tabulate coral species are described and illustrated from the Upper Ordovician limestones and limestone breccias of central New South Wales. Included among the forms are four new species of *Bajgolia*: *B. caespitosa*, *B. furcata*, *B. minor* and *B. ? grandis*, the latter only doubtfully assigned to the genus, and five other new species, *Eofletcheria hadra*, *Aulopora walliensis*, *Adaverina acritos*, *Fletcheria ? stipulosa* and *Catenipora clausa*. An outline of the stratigraphic distribution of the faunas is also presented.

INTRODUCTION

Earlier contributions on the Upper Ordovician tabulate corals of central New South Wales are given by Etheridge (1909), Hill (1957), Webby and Semeniuk (1969, 1971) and Webby (1975). The present work completes descriptions of the following six tabulate coral groups—lyoporids, cryptolichenariids, auloporids, aulocystids, fletcheriids and halysitids. These are based on collections (both unsilicified and silicified) housed in the Department of Geology and Geophysics, University of Sydney.

The faunas have been collected from widely scattered localities on the flanks of the Molong Rise and on the Parkes Platform (Webby, 1976), through a considerable part of the Late Ordovician (from late Gisbornian or early Eastonian to early Bolindian). Distinctive faunas are readily distinguishable at each of the four stratigraphic levels (Faunas I-IV of Webby, 1969, 1972, 1975), and at the lowest stratigraphical level (Fauna I) there are important lateral faunal variations arising from the differing tectono-environmental settings on either side of the Molong Rise. As representative of Fauna I on the eastern flank of the Molong Rise is the assemblage from the lower part of the Cliefden Caves Limestone of *Eofletcheria hadra* sp. nov., *Bajgolia caespitosa* sp. nov., *B. furcata*, sp. nov., *B. cf. contigua* (Hill, 1955) and *B. minor* sp. nov., and the occurrence of *B. cf. furcata* from a similar stratigraphic level in the Reedy Creek Limestone. A somewhat different fauna characterises Fauna I on the western side of the Molong Rise. Not only are all the species of *Tetradium* different (see Webby and Semeniuk, 1971), but other tabulates as well—for example, *Fletcheria ? stipulosa* sp. nov. in the Gerybong Limestone Member (Semeniuk, 1973) and *Bajgolia cf. gracilis* (Hill, 1957) in the Manooka Limestone Member of the Daylesford Limestone (Bowen Park Group).

The massive, middle member of the Cliefden Caves Limestone was originally excluded from the faunal scheme because it contained few key fossils. The finding of certain diagnostic forms in the massive limestone has, however, led to the bulk of this sequence being assigned to Fauna II. I. G. Percival recently collected *Bajgolia ? grandis* sp. nov., and the stromatoporoid *Ecclimadictyon* from a level ("E-horizon") 94 m above the base of the massive member in the Licking Hole Creek area. This extends the range of the Fauna II assemblage

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